The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHRISTOPHER GARNIER and PASCAL DEBATY

Appeal No. 2005-1269
Application No. 09/499,060

ON BRIEF

Before KRASS, BLANKENSHIP and NAPPI, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 9-20, 36, 37, and 40.

The invention is directed to a voltage ramp generator, best illustrated by reference to representative independent claim 9, reproduced as follows:

> 9. An integrated circuit voltage ramp generator produced using CMOS technology and comprising:
>
> a capacitance; and

a CMOS charging circuit connected to said capacitance and comprising

a current generator having a first resistance, and

a circuit connected to said current generator and to said capacitance said circuit having a second resistance and enabling a capacitance charging current to be proportional to a square of a ratio of the second resistance and the first resistance.

The examiner relies on the following references:

Tanigawa	4,814,724	Mar. 21, 1989
Lauffenburger	5,254,957	Oct. 19, 1993

Additionally, the examiner relies on admitted prior art (APA) depicted in instant Figure 1.

Claims 9-20, 36, 37, and 40 stand rejected under 35 U.S.C. § 103 as unpatentable over APA in view of Tanigawa and Lauffenburger.

Reference is made to the brief and answer for the respective positions of appellants and the examiner.

OPINION

At the outset, we note that, in accordance with appellants' grouping of the claims at page 4 of the brief, all claims will stand or fall together.

It is the examiner's position that APA discloses a capacitance and a charging circuit connected thereto, wherein the charging circuit has a broad current source Ig1,

with no express teaching of the particular structure of the current source. The examiner turns to Figure 4 of Tanigawa for a disclosure of a specific current sink comprising a current generator 9 having a first resistance (the internal resistance of current source 9) and a circuit (Q1, Q2, R) having a second resistance. The examiner asserts that Tanigawa discloses the advantage of gain control and that it is "notoriously well known that to modify a current sink circuit...to a current source circuit, such requires changing the conductivity types of the transistors and the polarities of the power supply" (answer-page 4). The examiner specifically points to Figures 8 and 9 of Lauffenburger to show the "notoriety of this modification" (answer-page 4).

The examiner then concludes that it would have been obvious to modify the Figure 4 circuit of Tanigawa to be a current source circuit by changing the conductivity types of transistors Q1 and Q2 and the polarities of the power supply, as suggested by Lauffenburger. Further, contends the examiner, it would have been obvious to use the specific current source of Tanigawa, as modified, for the broad current source Ig1 of APA for the expected advantage of obtaining a constant current with gain control (see page 4 of the answer).

The examiner further contends that it would have been obvious to provide the combination of APA, Tanigawa and Lauffenburger "in integrated form to obtain the

expected advantage of matched temperature response characteristics" for the reasons stated at page 5 of the answer.

Moreover, the examiner asserts that since the modified circuit includes MOS transistors and since Tanigawa discusses that resistor R is variable, "it is clear that resistor R can be varied such that the circuit will have the claimed operation" (answer-page 5).

For their part, appellants stress the claim language, "enabling a capacitance charging current to be proportional to a square of a ratio of the second resistance and the first resistance" of claim 9 and similar language in independent claims 15 and 36. They contend that the applied references do not teach or suggest this limitation.

The examiner's explanation for finding this limitation in the applied references is set forth at pages 5-6 of the answer, as set forth below:

> Since the modified circuit includes MOS transistors and since Tanigawa discusses that resistor R is variable, it is clear that the resistor R can be varied such that the circuit will have the claimed operation. Examiner further contends that since transistor Q2 is modified to be a diode-connected MOS transistor, such will operate as a diode. As is well known, by having a diode voltage drop, such will have a gate-to-source voltage substantially equal to the threshold voltage thereof. This will provide that the VGST-Vth will be negligible (i.e., almost zero). Thus, it would be true that Re x Ig2 >> VGT-Vth (as discussed in line 6 of page 6 of specification) for elements 9, Q2 and R of Tanigawa. As a result, the above modification will have the claimed operation of the "capacitance charging current" being "proportional to a square of a ratio of the second resistance (R) and the first resistance (resistance of 9)".

When appellants point out that "it is not necessarily true that Re x Ig2 >>VGST4-Vth4 for elements 9 and Q2 of Tanigawa" and that in the instant invention, resistance Re is chosen so that Re x Ig2 >> VGST4-Vth4, leading to the capacitance charging current being proportional to a square of a ratio of the second resistance and the first resistance (brief-page 8), the examiner's response is to point to column 1, lines 61-64, of Tanigawa:

> Namely, by changing the value of the variable resistor R to vary the voltage thereacross, the gain of the amplifier circuit of the current mirror circuit type is set to any desired value.

The examiner argues that since this portion of the reference expressly states that the gain can be set to any desired value, this would include a gain of 1, which would make the base-emitter voltage of Q2 equal to the threshold voltage of Q2 (answer-page 7).

We have reviewed the evidence of record, including the arguments of appellants and the examiner, and we conclude therefrom that the examiner's rationale is not convincing of obviousness of the instant claimed subject matter.

The examiner's view is that the claim language, "enabling a capacitance charging current to be proportional to a square of a ratio of the second resistance and the first resistance," is taught by Tanigawa's disclosure of resistor R being variable. If

R can be set to any value, reasons the examiner, then the combination of applied references is capable of providing the claimed function.

Even if the resistor R in Tanigawa is capable of being set to some value that would result in the claimed invention, the question is what would have led the artisan to choose the specific value of R, to enable the charging current to be proportional to a square of a ratio of the second resistance and the first resistance. Without appellants' suggestion to make the charging current proportional to a square of a ratio of the second resistance and the first resistance, the artisan would appear to have had no reason to modify the references in order to reach this claimed result.

Thus, assuming, arguendo, that the examiner's rationale was reasonable anent the rest of the claimed subject matter, the rationale is just not convincing as to the combination of applied references suggesting the claimed requirement of the charging current being proportional to a square of a ratio of the second resistance and the first resistance.

Accordingly, we will not sustain the rejection of claims 9-20, 36, 37, and 40 under 35 U.S.C. § 103 as, in our view, the examiner has not established a prima facie case of obviousness with regard to the instant claimed subject matter.

REVERSED

ERROL A. KRASS)
Administrative Patent Judge)
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HOWARD B. BLANKENSHIP) BOARD OF PATENT
Administrative Patent Judge) APPEALS
) AND
) INTERFERENCES
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ROBERT E. NAPPI)
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